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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,892	10/20/2005	Anders Brolin	1542-1007	2250

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EXAMINER

ALLEN, CAMERON J

ART UNIT	PAPER NUMBER
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1797

MAIL DATE	DELIVERY MODE
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01/10/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/530,892	BROLIN ET AL.	
	Examiner	Art Unit	
	Cameron J. Allen	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 2 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-7 and 10-21 is/are rejected.
- 7) ☒ Claim(s) 8 and 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claim 1-21 been considered but are moot in view of the new ground(s) of rejection.

The examiner takes note that claim 2 has been canceled. Claims 1 and 3-21 are currently pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 6 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Dadd US 4,230,571.

Regarding claim 6, Dadd teaches an apparatus for treatment of liquid according to claim 1, comprising: *The examiner interprets the treatment of liquids according to claim 1 to be intended use of the apparatus.*

a container having an inlet and an outlet for the liquid to be treated, (Figure 2 Dadd)

UV generating light source capable of irradiating

an inside of the container, (Abstract Dadd)

air guidance means arranged inside the container,

connected to an air source; and (Abstract Dadd) (column 5 line 65)

an inlet conduit for the liquid to be treated via a mixing means. (column 5 line 56-60)

Regarding claim 10, Dadd teaches the apparatus according to claim 6, wherein the mixing means comprises a throttle on the inlet, which throttle is capable of creating an ejector effect of the air/ozone into the flow of liquid. (Column 5 line 65-70) The examiner interprets a variable pump to have a throttle.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3-5, 7, and 11-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dadd US 4,230,571 in further view of Kawai et al. US 4,863,608.

Regarding claim 1, Dadd teaches a method for treating liquids, comprising:

- irradiating a flow of air and a flow of [[the]] liquid to be treated at a same time in order to create ozone in both the air and the liquid, (Column 2 line 17-25)
- mixing the ozone-containing air with the liquid to be treated upstream of a liquid irradiating point, (Column 2 line 29-34)
- irradiating the flow of liquid containing the in- mixed ozone in order to break down the ozone in the liquid for producing free radicals; and (Column 2 line 33-35) but does not teach exposing the liquid to at least one catalyst at the same time as the ozone is broken down for increasing an amount of free radicals. Kawai et al does teach of the use of photo catalyst for the use of water treatment. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Dadd with the photo catalyst in Kawai for the expected and increases catalytic effects in the production of ultra pure water.

Regarding claim 3, Dadd in view of Kawai teach the method according to claim 1, wherein [[the]] UV radiation which is emitted for breaking down the ozone and

contaminants has a wavelength of 180 nm - 400 nm. (Column 4 line 66) *The examiner interprets the 1,850 Angstroms to be 185 nm.*

Regarding claim 4, Dadd in view of Kawai teach the method according to claim 3, wherein the UV radiation which is emitted for breaking down the ozone has a wavelength of 254 nm. (Column 5 line 15) It would have been obvious to one of ordinary skill in the art at the time of the invention to discover the optimum value of operations, since it has been held that if the general conditions exist in the prior art it only take routine skill of the art to find the usable or workable range.

Regarding claim 5, Dadd in view of Kawai teach the method according to claim 1, wherein the mixing is obtained by an ejector effect into the flow of liquid. (Column 5 line 66) The examiner interprets a venturi to have the effect of an ejector.

Regarding claim 7, Dadd in view of Kawai teach the apparatus according to claim 6, wherein said air guidance means comprises a compartment divided from the inside of the container and that said UV generating light source is arranged in or adjacent said compartment but does not teach the separation is by a quartz glass. (Figure 1 Dadd) It would have been obvious to one of ordinary skill in the art at the time of the invention to use quartz, since it has been held to be within the skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

Regarding claim 11, Dadd in view of Kawai teach the apparatus for treating liquids, and in particular water, according to claim 6, further including through-flowing means provided with inlets and outlets for the liquid, the UV generating light

source being arranged in the through-flowing means, capable of generating ozone in the through-flowing liquid and at the same time break down the ozone in order to produce free radicals, but does not teach wherein mountable and demountable connection means are arranged to the inlet and outlet of the through-flowing means. It would have been obvious to one of ordinary skill in the art at the time of the invention to use mountable and demountable connection means, since it has been held that the provision of adjustability, where needed, involves routine skill in the art.

Regarding claim 12, Dadd in view of Kawai teach the apparatus according to claim 11, wherein the apparatus is arranged with at least two through-flowing means. (Figure 1Dadd) *The examiner interprets the air to have a through flowing means and the water to also have a through flowing means.*

Regarding claim 13, Dadd in view of Kawai teach the apparatus according to claim 12, wherein said through-flowing means are arranged in series, whereby a first through-flowing means is connected to an inlet pipe for liquid to be treated and that a second through-flowing means is connected to an outlet pipe for the treated liquid. (Column 2 line 57-70 Dadd)

Regarding claim 14, Dadd in view of Kawai teach the apparatus according to claim 12, wherein at least two of the said through flowing means are connected in parallel to an inlet pipe for liquid to be treated and an outlet pipe for the treated liquid. (Column 2 line 57-70 Dadd)

Regarding claim 15, Dadd in view of Kawai teach the apparatus according to claim 11, wherein the through-flowing means is an elongated pipe. Regarding claim 16,

The apparatus according to claim 15-wherein the UV generating light source is arranged in one end of the elongated pipe. (Column 2 line 57-70 Dadd) *The examiner interprets a conduit to be an elongated pipe.*

Regarding claim 17, Dadd in view of Kawai teach the apparatus according to claim 11, but does not teach wherein ceramics *[[is]]* are arranged on the inside of the through-flowing means at least adjacent said UV generating light source. It would have been obvious to one of ordinary skill in the art at the time of the invention to use ceramics, since it has been held to be within the skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

Regarding claim 18, Dadd in view of Kawai teach the apparatus according to claim 17, wherein the ceramics comprise titanium oxides. (Abstract Kawai et al)

Regarding claim 19, Dadd in view of Kawai teach the apparatus according to claim 11, wherein the through-flowing means is arranged adjacent a water outlet for human use, or a shower head for human use. (Column 3 line 19-20) The examiner interprets a pool to be for human use.)

1. Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dadd in view of Kawai as applied to claim 1 above, and further in view of Mancil (US 5,843,309).

Regarding claim 20, Dadd in view of Kawai teach the apparatus according to claim 19, but does not teach wherein the through-flowing means is arranged between a

water faucet and the water outlet. Mancil does teach a through flowing means located near an outlet for human use like a shower head, or that the means is located between a water faucet and the water outlet, or between a warm water source. (Figure 2) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Dadd in view of Kawai with Mancil. All of the references teach water treatment using ultraviolet light for purification. It is known in the art that water flowing from a faucet may need treatment. It would have been obvious to one of ordinary skill in the art at the time of the invention to know that a faucet is capable of delivering warm water.

Regarding claim 21, Dadd in view of Kawai teach the apparatus according to claim 19, wherein the through-flowing means is arranged between a warm water pipe and a faucet connected to the water outlet. Mancil does teach a through flowing means located near an outlet for human use like a shower head, or that the means is located between a water faucet and the water outlet, or between a warm water source. (Figure 2) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Dadd in view of Kawai with Mancil. All of the references teach water treatment using ultraviolet light for purification. It is known in the art that water flowing from a faucet may need treatment. It would have been obvious to one of ordinary skill in the art at the time of the invention to know that a faucet is capable of delivering warm water.

Allowable Subject Matter

2. Claims 8 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

3. The following is an examiner's statement of reasons for allowance: The prior art does not teach the use of titanium dioxide as a catalyst wherein substantially a whole of an inner surface of the pipe is covered.

Conclusion

4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cameron J. Allen whose telephone number is 571-2703164. The examiner can normally be reached on Mon-Fri 8-5 alternate Fri off.

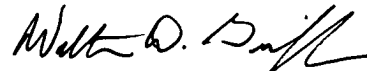
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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CJA



WALTER D. GRIFFIN
SUPERVISORY PATENT EXAMINER